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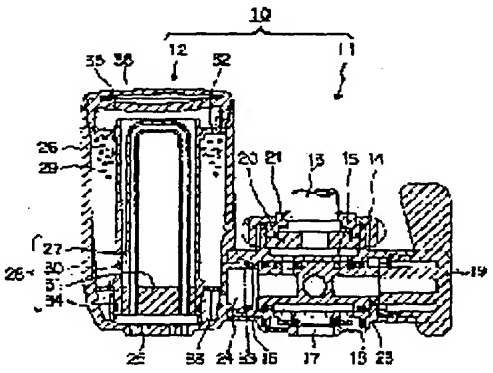
(54) MAIN BODY FOR WATER PURIFIER, CARTRIDGE THEREFOR AND COCK DIRECT CONNECTION TYPE WATER PURIFIER CONSISTING OF BOTH OF THEM

(57)Abstract:
PURPOSE: To provide a main body and cartridge for a water purifier reduced in the number of constituent parts and taking no labor in replacing work and a cock direct connection type water purifier 10 constituted of them and realizing the conservation of space and the reduction of cost.
CONSTITUTION: A main body 11 for a water purifier is equipped with a body 18 and the passage changeover valve 19 built in the body 18 and a bayonet mechanism for connecting a cartridge 12 is provided to the raw water take-out port of the body. The cartridge 12 is constituted by directly charging U-shape hollow yarn bundles 28 and an activated carbon bed 29 in a container 26 and the bayonet mechanism for connecting the main body 11 is provided to the raw water receiving port 24 of the container. The main body and the cartridge are integrally formed by the bayonet mechanisms to constitute the water purifier 10.



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* NOTICES *

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CLAIMS

[Claim(s)]
[Claim 1] The mainframe of the faucet direct attachment type which is built in the body which has raw-water output port for connecting with the cartridge which filters the raw water accepted in the flank from the aforementioned raw-water inlet while it has a raw-water inlet in the upper part and it has a raw-water feed hopper in the lower part, and the aforementioned body, is equipped with the switch bulb which switches the raw water accepted from the aforementioned raw-water inlet, and is characterized by to be established the bayonet device for connecting with the aforementioned cartridge at the raw-water output port of the aforementioned body for
[Claim 2] The container which has the raw water acceptance opening in a flank, and has a filtered water feed hopper in the lower part, and the U character-like hollow-filament flux in which it was contained in the aforementioned container, and the opening edge of two or more hollow filaments counters the aforementioned filtered water feed hopper, and was established, It has the active-carbon layer with which the space of the aforementioned container and the aforementioned hollow-filament flux was filled up. the aforementioned U character-like hollow-filament flux and the aforementioned active-carbon layer The cartridge for water purifiers of the faucet direct attachment type characterized by preparing the bayonet device for connecting with the aforementioned mainframe for water purifiers in the raw water acceptance opening of the aforementioned container while it is directly contained in the aforementioned container.
[Claim 3] The faucet direct-attachment-type water purifier characterized by coming to connect the mainframe of a claim 1, and the cartridge of a claim 2 according to each aforementioned bayonet device free [attachment and detachment].
[Claim 4] The heights by which the aforementioned bayonet device was prepared in any of the raw water output port of the aforementioned mainframe, and the raw water acceptance opening of the aforementioned cartridge, or one side, It is the attachment-and-detachment device which was prepared in another side of the raw water output port of the aforementioned mainframe, and the raw water acceptance opening of the aforementioned cartridge and which consists of a concavity which engages with the aforementioned heights. the aforementioned heights The taper screw which predetermined twists around the hoop direction of the aforementioned raw water output port or the raw water acceptance opening, and has a length, When the aforementioned cartridge is changed the aforementioned mainframe into the engagement status and carries out predetermined angle rotation, the aforementioned mainframe and the aforementioned cartridge consist of a stopper which stops in the status that it stuck to the fluid-tight status. the aforementioned concavity The faucet direct-attachment-type water purifier of the claim 3 characterized by consisting of a notch which the taper screw and stopper of the aforementioned heights insert, and ****** which engages with the aforementioned taper screw.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] this invention relates to the faucet direct-attachment-type water purifier whose whole equipment there are few component-part mark and is ** space easily [it is detailed and / exchange of a cartridge and a mainframe] about the water purifier with which it comes to combine with one the cartridge, the mainframe, and these which are used for a faucet direct-attachment-type water purifier, respectively free [attachment and detachment].
[0002]
[Description of the Prior Art] What was indicated as a conventional faucet direct-attachment-type water purifier by JP,3-56696,U shown, for example in drawing 9 is known.
[0003] This water purifier is what consisted of the filtration section 2 which has the cartridge 1 with which filter mediums, such as active carbon, were filled up as shown in drawing, and the cock section 3. By linking the cock section 3 with the faucet 4 of the aqueductus directly, and changing the passage of cock circles to either a filtration section 2-way or the raw water feed-hopper 5 orientation of the method of a cock subordinate Although [well-known] it takes out from the filtered water feed hopper 6, using raw water as depuration water or it takes out from the raw water feed hopper 7 as shower water as it is, the place by which it is characterized [the] is to connect the filtration section 2 possible [rotation] about 90 degrees at least to the cock section 3.
[0004]
[Problem(s) to be Solved by the Invention] However, the above-mentioned conventional water purifier had the fault described below, although the whole water purifier was ** space, since the parts mark which constitute a water purifier were two points, the filtration section 2 and the cock section 3, in general.
[0005] As shown in drawing, the filtration section 2 ** The passage section 7 and the cartridge 1, Since three points of the tubed covering 8 which carries out screw setting fixation are consisted of by the passage section after combining a cartridge with the passage section 7, component-part mark face exchange of about [many] and the cartridge 1. After loosening and removing covering 8 from the passage section 7 one by one and combining a new cartridge with the passage section 7, in order to have to carry out passage section fixation of the covering again, time is such a thing to exchange work.
[0006] ** The filtration section 2 should not be indicating at all the concrete configuration whose thing for which the filtration section 3 is fixed without a leak by arbitrary angle of rotation is difficult, and moreover realizes such a rotation integrated state, in order to rotate free about 90 degrees at least to the cock section 3.
[0007] ** Therefore, the conventional water purifiers total [which added the above-mentioned passage section 7 and the tubed covering 8 as a simple substance of an user side although component-part mark called it two points, the filtration section 2 and the cock section 3,] five, and they are that a manufacturing cost becomes high while the capacity of the whole water purifier becomes large.
[0008] this invention aims at offering the faucet direct-attachment-type water purifier which was made in view of the above-mentioned trouble, and consists of the mainframe for water

purifiers which realized ** space and the cost cut by offering the attachment-and-detachment device which there is no leak and can carry out attachment-and-detachment combination of between the cartridge for water purifiers there are [cartridge] few component-part mark and time does not have [cartridge] such a thing in exchange work and a cartridge, and a mainframe easily, a cartridge for water purifiers, and these.
[0009]
[Means for Solving the Problem] In order to solve the above-mentioned technical probrem, the mainframe for water purifiers of the faucet direct attachment type concerning this invention The body which has raw water output port for connecting with the cartridge which filters the raw water accepted in the flank from the aforementioned raw water inlet while it has a raw water inlet in the upper part and it has a raw water feed hopper in the lower part, It is built in the aforementioned body, has the switch bulb which switches the raw water accepted from the aforementioned raw water inlet, and is characterized by preparing the bayonet device for connecting with the aforementioned cartridge in the raw water output port of the aforementioned body.
[0010] Moreover, the cartridge for water purifiers concerning this invention The container which has the raw water acceptance opening in a flank, and has a filtered water feed hopper in the lower part, and the U character-like hollow-filament flux in which it was contained in the aforementioned container, and the opening edge of two or more hollow filaments counters the aforementioned filtered water feed hopper, and was established, While it has the active-carbon layer with which the space of the aforementioned container and the aforementioned hollow-filament flux was filled up and the aforementioned U character-like hollow-filament flux and the aforementioned active-carbon layer are directly contained in the aforementioned container, it is characterized by preparing the bayonet device for connecting with the aforementioned mainframe for water purifiers in the raw water acceptance opening of the aforementioned container.
[0011] Furthermore, the faucet direct-attachment-type water purifier concerning this invention is characterized by coming to connect the above-mentioned mainframe and the above-mentioned cartridge according to each aforementioned bayonet device free [attachment and detachment].
[0012] In this case, the heights by which the aforementioned bayonet device was prepared in any of the raw water output port of the aforementioned mainframe, and the raw water acceptance opening of the aforementioned cartridge, or one side, It is the attachment-and-detachment device which was prepared in another side of the raw water output port of the aforementioned mainframe, and the raw water acceptance opening of the aforementioned cartridge and which consists of a concavity which engages with the aforementioned heights. the aforementioned heights The taper screw which predetermined twists around the hoop direction of the aforementioned raw water output port or the raw water acceptance opening, and has a length, When the aforementioned cartridge is changed the aforementioned mainframe into the engagement status and carries out predetermined angle rotation, the aforementioned mainframe and the aforementioned cartridge consist of a stopper which stops in the status that it stuck to the fluid-tight status. the aforementioned concavity It is desirable to use what consists of a notch which the taper screw and stopper of the aforementioned heights insert, and ****** which engages with the aforementioned taper screw.
[0013]
[Example] Hereafter, the mainframe for water purifiers concerning this invention, the cartridge for water purifiers, and the faucet direct-attachment-type water purifier that consists of these are concretely explained based on a drawing.
[0014] Drawing of longitudinal section of the faucet direct-attachment-type water purifier which drawing 1 requires for this invention, and the drawing 2 are right lateral views of the water purifier of drawing 1 . As shown in drawing, the faucet direct-attachment-type water purifier 10 of this invention consists of a mainframe for water purifiers 11, and a cartridge for water purifiers 12, and is directly linked with a faucet 13 by the fastener 14 of a mainframe 11.

[0015] First, the mainframe for water purifiers 11 Inside the body 18 which has the raw water output port 16 for supplying the raw water inlet 15 which accepts the raw water from a faucet 13 in the upper part, and the raw water accepted in the flank to the cartridge for water purifiers 12, and the raw water feed hopper 17 which takes out raw water as shower water as it is in the lower part The selector valve 19 which changes the passage of raw water in the above-mentioned raw water inlet 15 or raw water feed-hopper 17 orientation is formed, and the fastener 14 for connecting with a faucet 13 is formed in the body upper part. In addition, as a fastener 14 is shown in drawing, it consists of the ring-like rubber packing 20, a ferrule 21, and a cap 22, and connects with a cap and the body in the status that it does not leak by ****** and ****** which were formed, respectively, and since it is the well-known thing which makes the passage where the selector valve 19 was also minced on the spool shaft 23 engage with the above-mentioned raw water output port 16 or the raw water feed hopper 17 by carrying out predetermined angle rotation, a detailed explanation is omitted
[0016] next, the cartridge for water purifiers 12 -- a flank -- the raw water acceptance opening 24 -- having -- the shower of a plurality [lower part] -- it has the U character-like hollow thread layer 28 in which the opening edge of two or more hollow filaments 27 counters the filtered water feed hopper 25, and was established in the interior of the container 26 which has a hole 25 (filtered water feed hopper), and the active-carbon layer 29 with which it filled up between the hollow thread layer 28 and container 26 inner skin Potting is carried out by synthetic resin 31 so that only the opening edge of two or more hollow filaments 27 which the hollow thread layer 28 is the lower part of the barrel 30 of both-ends opening, and were bent in the shape of U character may carry out opening. While the upper part of a barrel 30 is being fixed to the container internal surface with VCF 32, the interior of a container is equipped with two or more holes through VCF 33 and O ring 34 which were formed in the shape of a said core so that the opening edge of a hollow filament 27 may counter the filtered water feed hopper 25. Moreover, it can be easily filled up with the hollow thread layer 28 and the active-carbon layer 29 in a container, and the transparent lid 35 is formed so that the dirt condition of a hollow fiber can be clearly seen from the exterior, and the upper part of a container 26 is further prepared in the upper part of the transparent lid 35 free [a container and attachment and detachment of the opaque double lid 36]. That is, the mainframe for water purifiers 12 is constituted from a member described above by one, and from the bayonet device described below in case of use, it connects with the mainframe for water purifiers 11, and one through the ring-like rubber packing 39, and it forms the faucet direct-attachment-type water purifier 10.
[0017] A bayonet device is an attachment-and-detachment device in which it is shown in the drawing 3 and the drawing 4 , consist of a concavity 37 formed in the raw water output port 16 interior of the aforementioned mainframe 11, and a heights 38 formed in the raw water acceptance opening 24 exterior of the aforementioned cartridge 12, and a concavity 37 and the heights 38 are engaged. Of course, the position in which a concavity 37 and the heights 38 are formed may be contrary to the above-mentioned case. As a heights 38 is shown in drawing 4 , the couple is prepared in the position where the exterior of the raw water acceptance opening 24 countered, and each heights 38 stands in a row in taper screw 38a which the taper angle of the hoop direction of the raw water acceptance opening 24 is theta, and predetermined twists and has a length, and this taper screw 38a, and consists of the stopper 38b prolonged in screw shaft orientations. In this example, although the notch was made into the couple, of course, it may be two or more pairs. In this case, it is effective in there being few rotation angles for fixing a cartridge 12 to a mainframe 11, and ending. Moreover, the concavity 37 consists of the ****** 37b of the predetermined length which engages with notch 37a which has a notch length longer than hoop-direction length L of a taper screw and a stopper, and taper screw 38a. Stopper 38b is prepared in a position where a cartridge 12 stands straight as shown in drawing 1 , when the termination of ****** 37b of a mainframe contacts in the case of this example.
[0018] Therefore, in order to combine a cartridge 12 with a mainframe 11, as the 1st step, as

shown in drawing 5 , a cartridge 12 is leveled, the heights 38 is inserted into notch 37a of a mainframe 11, and as shown in drawing 6 as the 2nd step, a cartridge 12 is rotated 90 degrees clockwise. At the 1st step, ****** 37b invades in ********** 38c of a heights 38, and while the cartridge 12 whole moves in the mainframe 11 orientation as ****** 37b gears with taper screw 38a, ****** 37b stops in the position which contacted stopper 38b. That is, a cartridge 12 can combine with a mainframe 11 only at two steps at one, and in case of the exchange to a new article cartridge, the water purifier 10 of this example removes covering 8 one by one like the conventional article of drawing 9 , and does not take out a cartridge 1, but equips only with one cartridge 12 as one unit, and if a filtration life comes, it will discard the whole cartridge.

[0019] If city water is received from the raw water inlet 15, the water purifier 10 of this example constituted as mentioned above will supply city water as shower water from the raw water feed hopper 17 more for changing a selector valve 19 in the proper orientation, or will supply it in the raw water output port 16 orientation. According to the above-mentioned bayonet device, since the cartridge 12 and the mainframe 11 have stuck mutually the raw water which reached raw water output port 16 through the ring packing 39, it does not leak outside in this fraction. The raw water supplied to the raw water acceptance opening 24 of a cartridge passes from the hole of VCF 33 in the order of the active carbon 29 and the hollow thread layer 28, is filtered here, and is taken out from the filtered water feed hopper 25 as depuration water.

[0020] In addition, although it considered as the thing of a configuration of that a cartridge 12 stands straight at the time of water-purifier use in this example as shown in drawing 6 , as shown in the drawing 7 and the drawing 8 , a cartridge may be made to be level by being referred to as feed-hopper 25a which rotated the filtered water feed hopper 25 of drawing 6 90 degrees at the time of water-purifier use. Moreover, although the above-mentioned bayonet device was used as a connection means of a cartridge 12 and the mainframe 11, nothing may be limited to the thing of this mode and well-known meanses, such as usual screw connection and a flange connection, may be used.

[0021]

[Effect of the Invention] Since the mainframe for faucet direct-attachment-type water purifiers of the claim 1 concerning this invention used the bayonet device only connectable with one at two steps for the connection means with a cartridge, it can combine both easily and quickly in the status that there is no water leak status.

[0022] Since it detaches [cartridge / whole] in case of the exchange to a new article cartridge while its component-part mark decrease, since the cartridge for faucet direct-attachment-type water purifiers of the claim 2 concerning this invention contains filter mediums, such as active carbon and a hollow fiber, directly in a container unlike what carries out screw setting fixation of the tubed covering further after combining a cartridge with the passage section like elegance before, it has the outstanding effect that exchange work is very easy.

[0023] Since the above-mentioned bayonet device was used for it while the faucet direct-attachment-type water purifier of the claim 3 concerning this invention could realize the ** space of the whole water purifier, and the cost cut by the component-part mark of a cartridge decreasing as described above, it has the outstanding effect that both are quickly [easily and] combinable in the status that there is no water leak status.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the cross section of one example of the faucet direct-attachment-type water purifier concerning this invention.
[Drawing 2] It is the right lateral view of the faucet direct-attachment-type water purifier of drawing 1 .
[Drawing 3] It is the partial perspective diagram of a bayonet device used for the mainframe for water purifiers of drawing 1 .
[Drawing 4] It is the partial perspective diagram of a bayonet device used for the cartridge for water purifiers of drawing 1 .
[Drawing 5] It is the front view having shown the operation of the faucet direct-attachment-type water purifier of drawing 1 .
[Drawing 6] It is the front view having shown the operation of the faucet direct-attachment-type water purifier of drawing 1 .
[Drawing 7] The example of the faucet direct-attachment-type water purifier of drawing 1 is the plan of the faucet direct-attachment-type water purifier concerning this invention of a different embodiment.
[Drawing 8] It is the plan of the faucet direct-attachment-type water purifier of drawing 7 .
[Drawing 9] It is the outline cross section of the conventional faucet direct-attachment-type water purifier.
[Description of Notations]
10 .... Faucet direct-attachment-type water purifier 11 .. Mainframe for water purifiers
12 .... Cartridge for water purifiers
13 .... Faucet
15 .... Raw water inlet
16 .... Raw water output port
17 .... Raw water feed hopper
18 .... Body
24 .... Raw water acceptance opening
25 .... Filtered water feed hopper
26 .... Container
28....U characters-like hollow-filament flux
29 .... Active-carbon layer
37 .... Concavity (bayonet device)
38 .... Heights (bayonet device)

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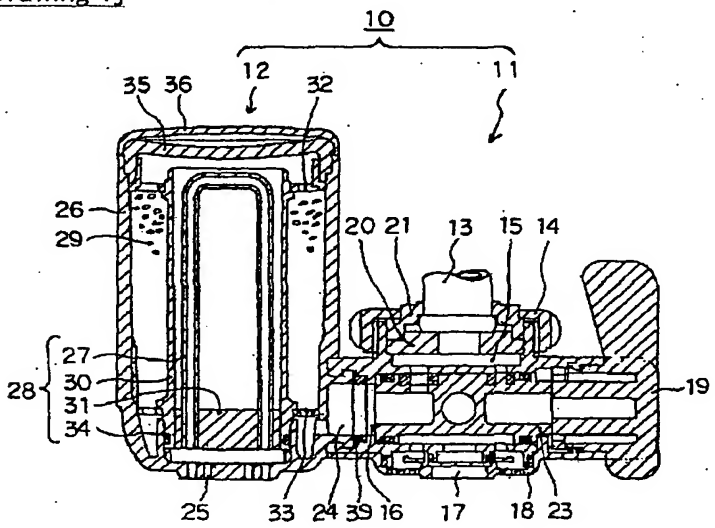
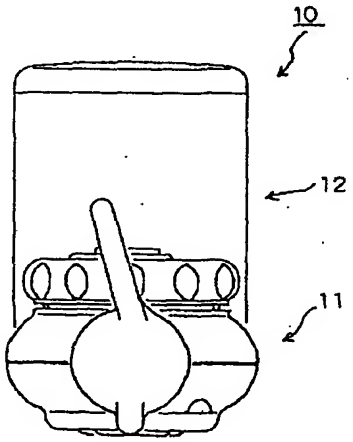
DRAWINGS

[Drawing 1]



[Drawing 2]



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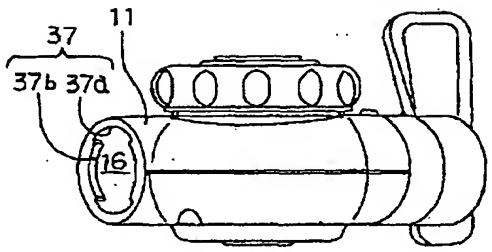
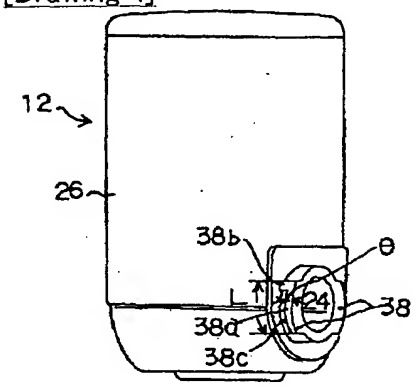
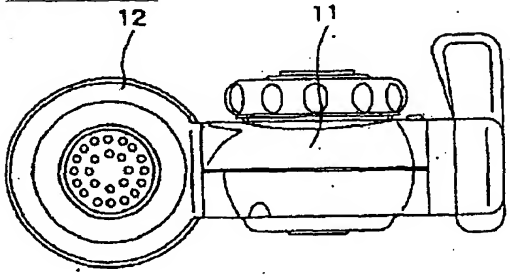


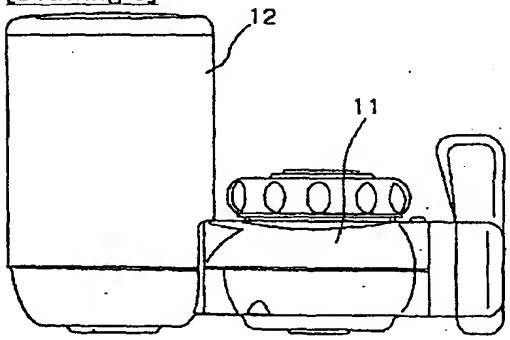
[Drawing 4]



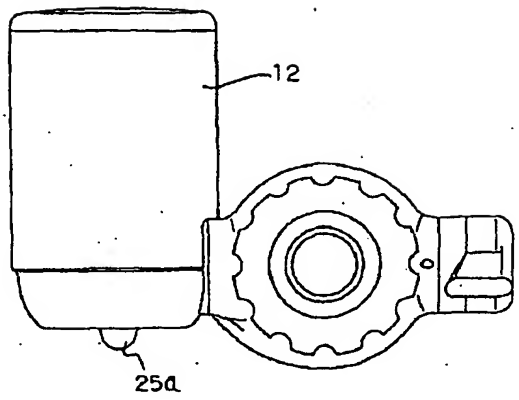
[Drawing 5]



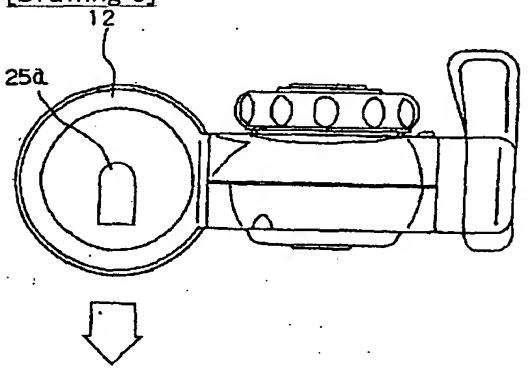
[Drawing 6]



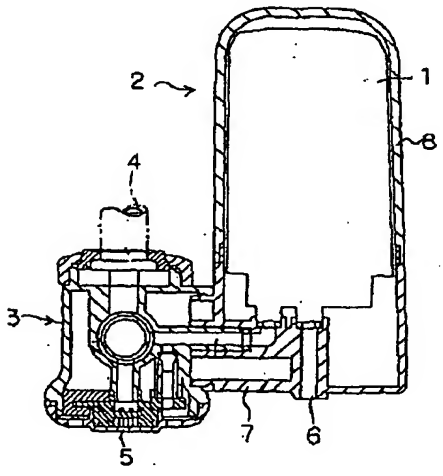
[Drawing 7]



[Drawing 8]



[Drawing 9]



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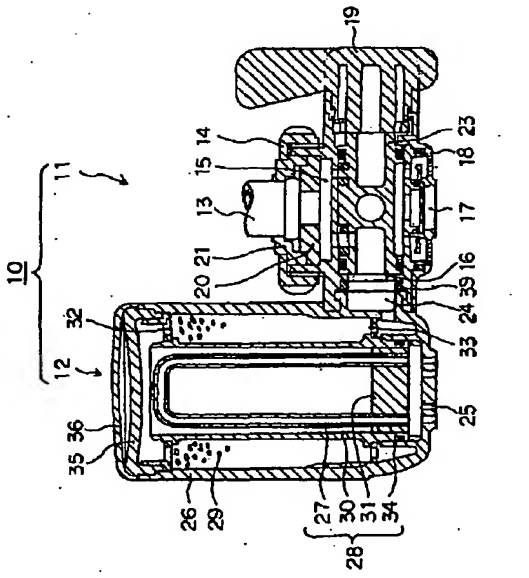
(54)【発明の名称】　浄水器用本体、浄水器用カートリッジ、およびこれらからなる蛇口直結型浄水器

(57)【要約】
【目的】構成部品点数が少なく、交換作業に手間がかかることのない浄水器用本体１１、カートリッジ１２、およびこれらからなる省スペースとコストダウンを実現した蛇口直結型浄水器１０を提供すること。
【構成】浄水器用本体１１は、ボディ１８、ボディに内蔵された流路切り換えバルブ１９とを備え、ボディの原水取出口にカートリッジと接続するためのバヨネット機構が設けられている。また、カートリッジ１２は、容器２６内にＵ字状中空糸束２８と活性炭層２９とが直接収納されており、容器の原水受入口２４には、前記本体１１と接続するためのバヨネット機構が設けられている。そして上記バヨネット機構により、本体とカートリッジとが一体に形成されて浄水器１０が構成される。



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【特許請求の範囲】

【請求項１】上部に原水入口、下部に原水供給口を有すると共に、側部に前記原水入口から受け入れた原水を濾過するカートリッジと接続するための原水取出口を有するボディと、

前記ボディに内蔵され、前記原水入口から受け入れた原水を切り換える切り換えバルブとを備え、

前記ボディの原水取出口には、前記カートリッジと接続するためのバヨネット機構が設けられていることを特徴とする蛇口直結型の浄水器用本体。

【請求項２】側部に原水受入口を有し、下部に濾過水供給口を有する容器と、

前記容器内に収納され、複数の中空糸の開口端部が前記濾過水供給口に対向して設けられたＵ字状中空糸束と、

前記容器と前記中空糸束との空間に充填された活性炭層とを備え、前記Ｕ字状中空糸束と前記活性炭層とは、前記容器内に直接収納されると共に、前記容器の原水受入口には、前記浄水器用本体と接続するためのバヨネット機構が設けられていることを特徴とする蛇口直結型の浄水器用カートリッジ。

【請求項３】請求項１の本体と請求項２のカートリッジとが、それぞれの前記バヨネット機構により着脱自在に接続されてなることを特徴とする蛇口直結型浄水器。

【請求項４】前記バヨネット機構は、

前記本体の原水取出口と前記カートリッジの原水受入口のいずれか一方に設けられた凸部と、前記本体の原水取出口と前記カートリッジの原水受入口の他方に設けられた、前記凸部と係合する凹部とからなる着脱機構であって、

前記凸部は、前記原水取出口または原水受入口の周方向に所定の巻き付け長さを有するテーパネジと、前記カートリッジを前記本体に係合状態にして所定角度回動したときに前記本体と前記カートリッジとが液密状態に密着した状態で停止するストッパとからなり、

前記凹部は、前記凸部のテーパネジとストッパとが挿入する切欠部と、前記テーパネジと係合するメネジとからなることを特徴とする請求項３の蛇口直結型浄水器。

【発明の詳細な説明】

【０００１】

【産業上の利用分野】本発明は、それぞれ蛇口直結型浄水器に使用されるカートリッジ、本体およびこれらが着脱自在に一体に結合されてなる浄水器に関し、詳しくはカートリッジおよび本体の交換が容易で、かつ、構成部品点数が少なく装置全体が省スペースである蛇口直結型浄水器に関する。

【０００２】

【従来の技術】従来の蛇口直結型浄水器としては、例えば図９に示した実開平３－５６６９６号公報に開示されたものが知られている。

【０００３】この浄水器は、図に示すように活性炭等の

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濾過剤が充填されたカートリッジ１を有する濾過部２と、水栓部３とから構成されたもので、水栓部３を水道の蛇口４に直結し、水栓部内の流路を濾過部２方向もしくは水栓部下方の原水供給口５方向のいずれかに切り替えることにより、原水を浄化水として濾過水供給口６から取出すか、もしくはそのままシャワー水として原水供給口７から取り出す公知のものであるが、その特徴とするところは、濾過部２は水栓部３に対して少なくとも約９０度回転可能に接続されていることにある。

【０００４】

【発明が解決しようとする課題】しかしながら、上記従来の浄水器は、浄水器を構成する部品点数が概ね濾過部２と水栓部３の２点であるため、浄水器全体が省スペースではあるが、以下に述べる欠点があった。

【０００５】①　濾過部２は、図に示すように流路部７と、カートリッジ１と、カートリッジを流路部７に結合した後、流路部にネジ止め固定する筒状カバー８の３点で構成されているため構成部品点数が多いばかりか、カートリッジ１の交換に際しては、カバー８を一々流路部７から弛めて外し、新カートリッジを流路部７に結合した後に再度カバーを流路部固定しなければならないため、交換作業に手間がかかること。

【０００６】②　濾過部２は、水栓部３に対して少なくとも約９０度自由に回転するため、濾過部３を任意の回転角度で水漏れなく固定することが困難であり、しかもこのような回転結合状態を実現する具体的構成を何ら開示していないこと。

【０００７】③　したがって、従来の浄水器は、構成部品点数が濾過部２と水栓部３の２点といえども、ユーザサイドの単体としては上記流路部７、筒状カバー８を加えた計５点であり、浄水器全体の容積が大きくなると共に、製造コストが高くなることである。

【０００８】本発明は、上記問題点に鑑みてなされたもので、構成部品点数が少なく、かつ交換作業に手間がかかることのない浄水器用カートリッジ、およびカートリッジと本体間を水漏れなく、容易に着脱結合することのできる着脱機構を提供することにより、省スペースとコストダウンを実現した浄水器用本体、浄水器用カートリッジ、およびこれらからなる蛇口直結型浄水器を提供することを目的とする。

【０００９】

【課題を解決するための手段】上記課題を解決するため、本発明に係る蛇口直結型の浄水器用本体は、上部に原水入口、下部に原水供給口を有すると共に、側部に前記原水入口から受け入れた原水を濾過するカートリッジと接続するための原水取出口を有するボディと、前記ボディに内蔵され、前記原水入口から受け入れた原水を切り換える切り換えバルブとを備え、前記ボディの原水取出口には、前記カートリッジと接続するためのバヨネット機構が設けられていることを特徴とする。

【００１０】また、本発明に係る浄水器用カートリッジは、側部に原水受入口を有し、下部に濾過水供給口を有する容器と、前記容器内に収納され、複数の中空糸の開口端部が前記濾過水供給口に対向して設けられたU字状中空糸束と、前記容器と前記中空糸束との空間に充填された活性炭層とを備え、前記U字状中空糸束と前記活性炭層とは、前記容器内に直接収納されると共に、前記容器の原水受入口には、前記浄水器用本体と接続するためのバヨネット機構が設けられていることを特徴とする。

【００１１】さらに、本発明に係る蛇口直結型浄水器は、上記本体と、上記カートリッジとが、それぞれの前記バヨネット機構により着脱自在に接続されてなることを特徴とする。

【００１２】この場合、前記バヨネット機構は、前記本体の原水取出口と前記カートリッジの原水受入口のいずれか一方に設けられた凸部と、前記本体の原水取出口と前記カートリッジの原水受入口の他方に設けられた、前記凸部と係合する凹部とからなる着脱機構であって、前記凸部は、前記原水取出口または原水受入口の周方向に所定の巻き付け長さを有するテーパネジと、前記カートリッジを前記本体に係合状態にして所定角度回動したときに前記本体と前記カートリッジとが液密状態に密着した状態で停止するストッパとからなり、前記凹部は、前記凸部のテーパネジとストッパとが挿入する切欠部と、前記テーパネジと係合するメネジとからなるものを用いるのが好ましい。

【００１３】

【実施例】以下、本発明に係る浄水器用本体、浄水器用カートリッジ、およびこれらからなる蛇口直結型浄水器を図面に基づいて具体的に説明する。

【００１４】図１は、本発明に係る蛇口直結型浄水器の縦断面図、図２は、図１の浄水器の右側面図である。図に示すように、本発明の蛇口直結型浄水器１０は、浄水器用本体１１と浄水器用カートリッジ１２とで構成され、蛇口１３に本体１１の固定具１４で直結される。

【００１５】まず、浄水器用本体１１は、上部に蛇口１３からの原水を受け入れる原水入口１５、側部に受入れた原水を浄水器用カートリッジ１２に供給するための原水取出口１６、および下部に原水をそのままシャワー水として取り出す原水供給口１７を有するボディ１８の内部に、原水の流路を上記原水入口１５または原水供給口１７方向に切り替える切替弁１９が設けられたものであり、ボディ上部には、蛇口１３と接続するための固定具１４が設けられている。なお、固定具１４は、図に示すように、リング状ゴムパッキン２０、押えリング２１、キャップ２２からなり、キャップとボディにそれぞれ形成されたメネジとオネジにより水漏れしない状態で接続する公知のものであり、また、切替弁１９もそのスプール軸２３上に刻まれた流路を所定角度回転することで上記原水取出口１６または原水供給口１７と係合させる公知のものであるため、ここでは詳細な説明は省略する。

【００１６】次に、浄水器用カートリッジ１２は、側部に原水受入口２４を有し、下部に複数のシャワー孔２５（濾過水供給口）を有する容器２６の内部に、複数の中空糸２７の開口端部が濾過水供給口２５に対向して設けられたU字状中空糸束層２８と、中空糸束層２８と容器２６内周面との間に充填された活性炭層２９とを備えたものである。中空糸束層２８は、両端部開口の筒体３０の下部で、U字状に折り曲げられた複数の中空糸２７の開口端部のみが開口するように合成樹脂３１でポッティングされており、筒体３０の上部がフイルタ３２により容器内壁面に固定されていると共に、中空糸２７の開口端部が濾過水供給口２５に対向するように複数の孔が同心状に設けられたフィルター３３とOリング３４とを介して容器内部に装着されている。また、容器２６の上部は、中空糸束層２８と活性炭層２９を容器内に容易に充填でき、かつ中空糸膜の汚れ具合が外部からよく見えるように透明蓋３５が設けられており、さらに透明蓋３５の上部には不透明の二重蓋３６が容器と着脱自在に設けられている。すなわち、浄水器用本体１２は、以上に述べた部材で一体に構成されているものであり、使用に際しては以下に述べるバヨネット機構より、リング状ゴムパッキン３９を介して浄水器用本体１１と一体に接続されて蛇口直結型浄水器１０を形成するようになっている。

【００１７】バヨネット機構は、図３および図４に示すもので、前記本体１１の原水取出口１６内部に形成された凹部３７と、前記カートリッジ１２の原水受入口２４外部に形成された凸部３８とから構成され、凹部３７と凸部３８とが係合されるようになっている着脱機構である。凹部３７と凸部３８が形成される位置は、上記の場合と勿論逆であってもよい。凸部３８は、図４に示すように原水受入口２４の外部の対向した位置に一対が設けられており、それぞれの凸部３８は、原水受入口２４の周方向のテーパ角がθで、かつ所定の巻き付け長さを有するテーパネジ３８ａと、このテーパネジ３８ａに連なり、ネジ軸方向に延びるストッパ３８ｂとで構成されている。切欠き部は、本実施例では一対としたが勿論２対以上であってもよい。この場合は、カートリッジ１２を本体１１に固定するための回動角が少なくてすむ効果がある。また、凹部３７は、テーパネジとストッパの周方向長さLよりも長い切欠き長さを有する切欠部３７ａと、テーパネジ３８ａと係合する所定長さのメネジ３７ｂとから構成されている。本実施例の場合、ストッパ３８ｂは、本体のメネジ３７ｂの終端が当接したとき、図１のようにカートリッジ１２が直立するような位置に設けられている。

【００１８】したがって、カートリッジ１２を本体１１に結合するには、第１ステップとして、図５に示すようにカートリッジ１２を水平にし、その凸部３８を本体１

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１の切欠き部３７ａ内に挿入し、第２ステップとして、図６に示すようにカートリッジ１２を時計方向に９０度回動させる。第１ステップでは、メネジ３７ｂが凸部３８のメネジミゾ３８ｃ内に侵入し、テーパネジ３８ａとメネジ３７ｂとが噛合うにしたがってカートリッジ１２全体が本体１１方向に移動すると共に、メネジ３７ｂがストッパ３８ｂに当接した位置で停止する。すなわち、本実施例の浄水器１０は、カートリッジ１２が本体１１に単に２ステップのみで一体に結合できるのであり、新品カートリッジへの交換に際しては、図９の従来品のように一々カバー８を外してカートリッジ１を取り出すのではなく、１個のカートリッジ１２のみを一単位として装着し、濾過寿命が到来すればカートリッジ全体を廃棄するのである。

【００１９】以上のように構成された本実施例の浄水器１０は、原水入口１５から水道水を受け入れると、切替弁１９を適宜の方向に切り替えるにより、原水供給口１７から水道水をシャワ水として供給するか、原水取出口１６方向に供給する。原水取出口１６に到達した原水は、上記バヨネット機構により、カートリッジ１２と本体１１とがリングパッキン３９を介して互いに密着しているので、この部分で外部に漏れることはない。カートリッジの原水受入口２４に供給された原水は、フィルター３３の孔から活性炭２９および中空糸束層２８の順に通過し、ここで濾過されて濾過水供給口２５から浄化水として取り出される。

【００２０】なお、本実施例では、図６に示したように浄水器使用時にカートリッジ１２が直立する構成のものとしたが、図７および図８に示すように、図６の濾過水供給口２５を９０度回転させた供給口２５ａとすることで、浄水器使用時にカートリッジが水平状態となるようにしてもよい。また、カートリッジ１２と本体１１との接続手段として上記バヨネット機構を用いたが、何もこの態様のものに限定するものではなく、通常のネジ接続、フランジ接続等の公知手段を用いてもよい。

【００２１】

【発明の効果】本発明に係る請求項１の蛇口直結型浄水器用本体は、カートリッジとの接続手段に単に２ステップで一体に接続できるバヨネット機構を用いたので、両者を水洩れ状態がない状態で容易、かつ迅速に結合することができる。

【００２２】本発明に係る請求項２の蛇口直結型浄水器用カートリッジは、従来品のようにカートリッジを流路部に結合した後、筒状カバーをさらにネジ止め固定するものとは異なり、容器内に直接、活性炭、中空糸膜等の濾過剤を収納するので、構成部品点数が少なくなると共に、新品カートリッジへの交換に際しては、カートリッジ全体を着脱するので、交換作業が非常に容易であるという優れた効果を有する。

【００２３】本発明に係る請求項３の蛇口直結型浄水器は、上記したようにカートリッジの構成部品点数が少なくなることで、浄水器全体の省スペースとコストダウンが実現できると共に、上記バヨネット機構を用いたので、両者を水洩れ状態がない状態で容易、かつ迅速に結合することができるという優れた効果を有する。

【図面の簡単な説明】

【図１】本発明に係る蛇口直結型浄水器の一実施例の断面図である。

【図２】図１の蛇口直結型浄水器の右側面図である。

【図３】図１の浄水器用本体に用いられているバヨネット機構の部分斜視図である。

【図４】図１の浄水器用カートリッジに用いられているバヨネット機構の部分斜視図である。

【図５】図１の蛇口直結型浄水器の作用を示した正面図である。

【図６】図１の蛇口直結型浄水器の作用を示した正面図である。

【図７】図１の蛇口直結型浄水器の実施例とは異なる実施態様の本発明に係る蛇口直結型浄水器の平面図である。

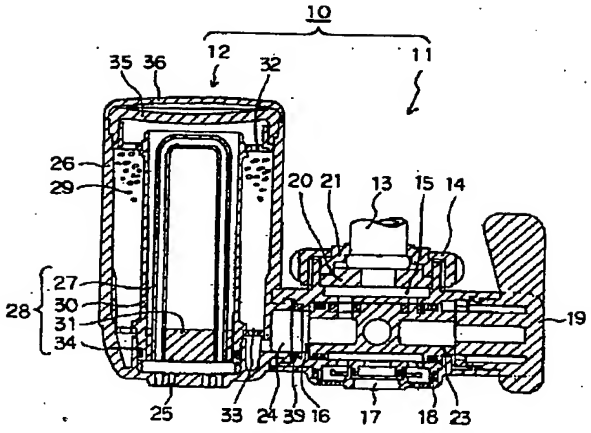
【図８】図７の蛇口直結型浄水器の平面図である。

【図９】従来の蛇口直結型浄水器の概略断面図である。

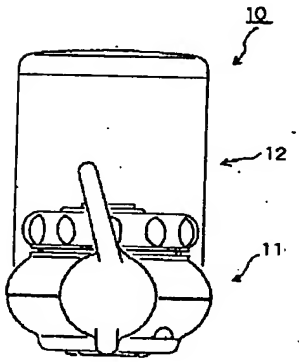
【符号の説明】

１０……蛇口直結型浄水器　１１……浄水器用本体
１２……浄水器用カートリッジ
１３……蛇口
１５……原水入口
１６……原水取出口
１７……原水供給口
１８……ボディ
２４……原水受入口
２５……濾過水供給口
２６……容器
２８……Ｕ字状中空糸束
２９……活性炭層
３７……凹部（バヨネット機構）
３８……凸部（バヨネット機構）

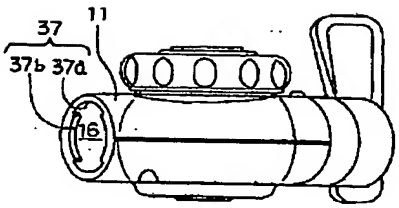
【図１】



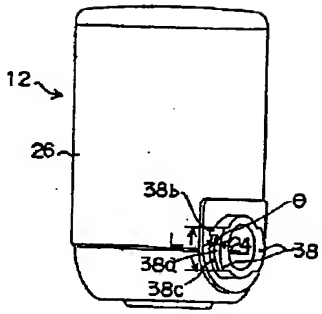
【図２】



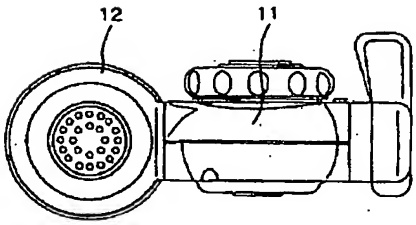
【図３】



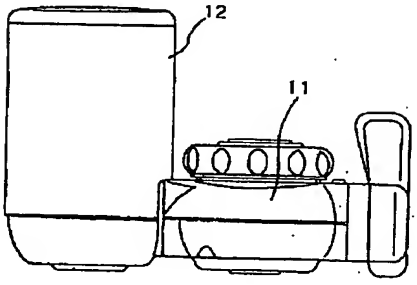
【図４】



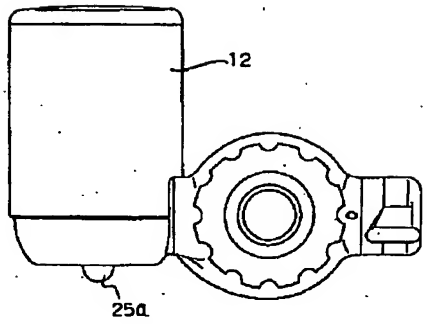
【図５】



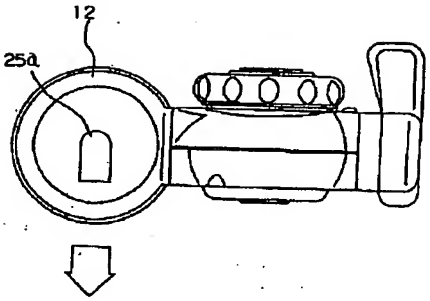
【図６】



【図７】



【図８】



【図９】